

82484

The Properties of Cerium Dioxide and Its Solid  
Solutions With Calcium- and Strontium Oxide

S/131/60/000/008/003/003  
B021/B058

the optimum temperature. The shrinkage and apparent porosity may be seen from Table 3. The influence of the granulation on the sintering process of cerium dioxide is shown in a figure. The elasticity was determined by the ultrasonic method and the YSMC (UZIS) instrument. The investigation of deformation under load was conducted according to ГОСТ (GOST) 4070-48. The investigation results of the fired samples are listed in Table 4. The temperature of the deformation under load of the samples from  $\text{CeO}_2$  and solid solutions with  $\text{CaO}$  is shown in Table 5. The chemical resistance of cerium dioxide and the solid solution  $\text{CeO}_2$  with  $\text{SrO}$  may be seen from Table 6. The authors state in conclusion that sintered highly refractory products with a porosity of up to 0.1% and a compressive strength of up to 2000 kg/cm<sup>2</sup> can be produced from cerium dioxide and its solid solution with calcium- and strontium oxide. In order to obtain well sintered products from pure cerium dioxide, the material must be finely ground. Products from solid solutions of  $\text{CeO}_2$  with strontium- and calcium oxide also sinter well with a coarser granulation of  $\text{CeO}_2$ . Products from  $\text{CeO}_2$  and its solid solutions can be fired at a temperature of 1500°C. Samples from  $\text{CeO}_2$  and its solid solution with strontium oxide show a high chemical resistance in contact with other highly refractory oxides at temperatures of from 1600° to 1700°C. The fields for the application of refractories from cerium are to be determined by further studies. There are 1 figure, 6 tables, and

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The Properties of Cerium Dioxide and Its Solid  
Solutions With Calcium- and Strontium Oxide

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5 Soviet references.

ASSOCIATION: Institut khimii silikatov AN SSSR  
(Institute of Silicate Chemistry AS USSR)

X

Card 3/3

85625

15.2142  
15.2210S/078/60/005/012/010/016  
B017/B064AUTHORS: Godina, N. A., Keler, E. K., and Rudenko, V. S.TITLE: Reaction of <sup>v</sup>Hafnium Dioxide With <sup>v</sup>Titanium DioxidePERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 12,  
pp. 2795-2797

TEXT: The solid-phase reaction in heating mixtures of hafnium dioxide and titanium dioxide was studied.  $\text{HfO}_2$  had a purity of 99%, and  $\text{TiO}_2$  a purity of 99.7%. The oxide mixtures were pressed to tablets under a pressure of  $500 \text{ kg/cm}^2$ , and burned at  $1350 - 1650^\circ\text{C}$ . The burned samples were subjected to an X-ray phase analysis. Fig. 1 shows the X-ray pictures of the mixtures of 50%  $\text{HfO}_2$  + 50%  $\text{TiO}_2$  and the combustion product of this mixture obtained at  $1650^\circ\text{C}$ . Hafnium titanate  $\text{HfTiO}_4$  forms in the reaction of  $\text{HfO}_2$  with  $\text{TiO}_2$ . Fig. 2 compares the X-ray pictures of zirconium titanate and hafnium titanate. The X-ray pictures of hafnium titanate obtained at 20, 1200, and  $1400^\circ\text{C}$  are given in Fig. 3. The solubility of  $\text{TiO}_2$  in  $\text{HfO}_2$

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ZUYEVA, L.S.; GODINA, N.A.; KELER, E.K.

Properties of cerium dioxide and its solid solutions with calcium  
and strontium oxides. Ogneupory 25 no.8:368-371 '60. (MIRA 13:9)

1. Institut khimii silikatov AN SSSR.  
(Cerium)

15.2100

2267  
S/062/61/000/010/001/018  
B117/B101

AUTHORS: Keler, E. K., Godina, N. A., and Savchenko, Ye. P.

TITLE: Reactions of silica with oxides of rare earths ( $\text{La}_2\text{O}_3$ ,  $\text{Nd}_2\text{O}_3$ ,  $\text{Gd}_2\text{O}_3$ ) in solid phases

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 10, 1961, 1728 - 1735

TEXT: The authors studied the conditions for the formation of rare-earth silicates in solid-phase reactions. The systems  $\text{La}_2\text{O}_3$ - $\text{SiO}_2$ ,  $\text{Nd}_2\text{O}_3$ - $\text{SiO}_2$ , and  $\text{Gd}_2\text{O}_3$ - $\text{SiO}_2$  were studied by X-ray analysis, chemical phase analysis, and microscopically. The initial reagents were analytically pure amorphous silica, 99% lanthanum and neodymium oxides, and 98.2% gadolinium oxide. Oxide mixtures were pressed to tablets and annealed in Silit or Kryptol furnaces. Mixtures of lanthanum oxide and silica were prepared in ratios of 3:1, 2:1, 1:1, 2:3, 1:2, and 1:3 and kept at 1100 - 1650°C for different times. X-ray analysis of a series of reaction products disclosed that two phases,  $\text{La}_2\text{O}_3 \cdot \text{SiO}_2$  and  $2\text{La}_2\text{O}_3 \cdot 3\text{SiO}_2$ , mainly the ortho- X

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Reactions of silica with...

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B117/B101

silicate phase, are formed in the temperature range of 1200 - 1400°C, irrespective of the oxide ratio in the initial mixture. Up to 1500°C the roentgenograms of the reaction products remain unchanged. When the temperature is raised, only the content of initial components in the samples decreases. Pyrosilicates are formed only at 1500 - 1650°C owing to the interaction of the resulting orthosilicates with silica. In  $1\text{La}_2\text{O}_3 + 3\text{SiO}_2$  which contains more silica, pyrosilicate formation may be observed already at 1400°C. Orthosilicate remains the intermediate phase. In mixtures having a higher content of lanthanum oxide (3:1, 3:2, 2:1), X-ray analysis disclosed the formation of  $\text{La}_2\text{O}_3 \cdot \text{SiO}_2$  and  $2\text{La}_2\text{O}_3 \cdot 3\text{SiO}_2$ . In samples of the composition  $2\text{La}_2\text{O}_3 + 3\text{SiO}_2$ , three phases were found:  $2\text{La}_2\text{O}_3 \cdot 3\text{SiO}_2$ ,  $\text{La}_2\text{O}_3 \cdot \text{SiO}_2$ , and  $\text{La}_2\text{O}_3 \cdot 2\text{SiO}_2$ . The orthosilicate is unstable and decomposes into pyrosilicate and oxyorthosilicate. Pure orthosilicate could not be obtained from the solid-phase reaction. Prolonged annealing and temperature increase to 1500 - 1650°C always resulted in orthosilicate decomposition. Lanthanum silicates obtained at 1200 - 1550°C are finely crystalline. Microscopic examination of these samples yields no definite

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Reactions of silica with...

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B117/B101

results. These products were studied by the chemical method with respect to their solubility in ammonium acetate; their resistance to the action of boiling ammonium acetate was compared with that of silicates obtained at 1600 - 1650°C. It was found that the compositions annealed at 1600 - 1650°C, which correspond to the pyrosilicate and orthosilicate, are sparingly soluble in ammonium acetate, while the oxyorthosilicate is markedly soluble. The solubility kinetics of silicates obtained at 1350°C is equal for all three compositions. On the basis of the experiments performed, a phase diagram of annealed mixtures could be plotted (Fig. 4). The reactions of neodymium oxide and gadolinium oxide with silica, studied by the same methods, showed similar conditions of silicate formation as in the case of  $\text{La}_2\text{O}_3\text{-SiO}_2$ . The formation of the compounds  $\text{La}_2\text{O}_3\cdot\text{SiO}_3$  and  $\text{Nd}_2\text{O}_3\cdot\text{SiO}_2$ , respectively, was confirmed by the crystallo-optical properties of the compositions  $1\text{La}_2\text{O}_3 + 1\text{SiO}_2$  and  $1\text{Nd}_2\text{O}_3 + 1\text{SiO}_2$  annealed at 1500 - 1650°C. The papers by N. A. Toropov, I. A. Bondar' (Izv. AN SSSR, Otd. khim. n. 1959, 554); N. A. Toropov, F. Ya. Galakhov (ibid., 1961, 000); N. A. Toropov, T. P. Kiseleva (Tr. Leningradskogo tekhnol. in-ta im. Lensoveta, no. 52 (1961)) are mentioned. There are 6 figures, 3 tables,

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Reactions of silica with...

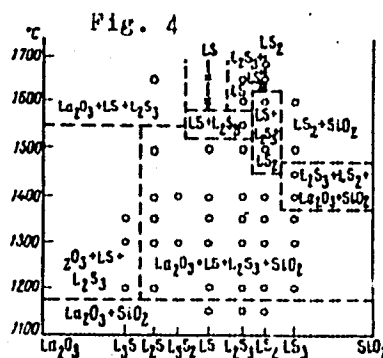
S/062/61/000/010/001/018  
B117/B101

and 6 references: 4 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: J. Warshaw, R. Roy, Bull. Amer. Cer. Soc. 38, N 4, 169 (1959).

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR (Institute of Silicate Chemistry of the Academy of Sciences USSR)

SUBMITTED: May 4, 1961

Fig. 4. Phase composition of annealed mixtures of  $\text{La}_2\text{O}_3$  and  $\text{SiO}_2$  (L -  $\text{La}_2\text{O}_3$ ; S -  $\text{SiO}_2$ ).



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25268

S/062/61/000/010/002/018  
B117/B101

15.2106

AUTHORS: Keler, E. K., Godina, N. A., and Savchenko, Ye. P.  
TITLE: Reactions of silica and praseodymium oxide in solid phases  
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 10, 1961, 1735 - 1741

TEXT: The authors studied the conditions of silicate formation through interaction of  $\text{Pr}_2\text{O}_3$  and  $\text{Pr}_6\text{O}_{11}$  with silica. The reaction products were investigated by X-ray analysis and chemical phase analysis. The initial reagents were 95% praseodymium oxide  $\text{Pr}_6\text{O}_{11}$  and analytical-grade amorphous silica. Experiments in hydrogen medium were performed in a Silit tubular furnace. When hydrogen was passed through at  $1200^\circ\text{C}$ ,  $\text{Pr}_6\text{O}_{11}$  was reduced up to  $\text{Pr}_2\text{O}_3$  within two hours. Mixtures with  $\text{Pr}_2\text{O}_3/\text{SiO}_2$  ratios of 1:1, 1:1.5, and 1:2 were used in the experiments. The orthosilicate  $2\text{Pr}_2\text{O}_3 \cdot 3\text{SiO}_2$  was found to be formed at  $1200^\circ\text{C}$ , as shown by X-ray analysis for all three compositions. At  $1300^\circ\text{C}$ , the orthosilicate was found again, but also

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Reactions of silica and...

oxyorthosilicate was formed from  $1\text{Pr}_2\text{O}_{3.66} + 1\text{SiO}_2$ . Further experiments at higher temperatures were made in air medium.  $\text{Pr}_6\text{O}_{11}$  was found to dissociate gradually. A comprehensive thermal analysis of this praseodymium oxide was carried out using a device designed by E. K. Keler and A. K. Kuznetsov (Ref. 7: Pribor dlya kompleksnogo termicheskogo analiza (Device for comprehensive thermal analysis), no. 2, VINTI, 1960). Oxygen absorption during cooling in the temperature range of 1100 - 1000°C was found to be accompanied by a marked growth of the sample. In order to obtain praseodymium silicates, mixtures of  $\text{Pr}_6\text{O}_{11}$  and silica were pressed to tablets and annealed together with a praseodymium-oxide tablet in a Silit, Kryptol, or reverberatory furnace at 1200 - 1650°C, and the content of active oxygen was determined. On annealing in air medium, the oxygen content remained unchanged at 1400°C. At 1500 - 1650°C, it dropped from 3.35% to 3.0 - 2.9%. In the air medium, praseodymium oxide was found to react with silica already at 1200°C while forming silicates. Like in experiments in hydrogen medium, the orthosilicate  $2\text{Pr}_2\text{O}_{3.66} + 3\text{SiO}_2$  is formed by reaction of  $2\text{Pr}_2\text{O}_{3.66} + 3\text{SiO}_2$  and  $\text{Pr}_2\text{O}_{3.66} + 2\text{SiO}_2$ . In  $1\text{Pr}_2\text{O}_{3.66} + 1\text{SiO}_2$

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Reactions of silica and...

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B117/B101

the oxyorthosilicate  $\text{Pr}_2\text{O}_3 \cdot \text{SiO}_2$  is formed in addition to the orthosilicate. In samples with a higher content of praseodymium oxide ( $2\text{Pr}_2\text{O}_{3.66} + 1\text{SiO}_2$ ) oxyorthosilicate is the only reaction product. At higher temperatures (in the range of 1400 - 1650°C), the orthosilicate is unstable and decomposes into  $\text{Pr}_2\text{O}_3 \cdot \text{SiO}_2$  and  $\text{Pr}_2\text{O}_3 \cdot 2\text{SiO}_2$ . The pyrosilicate formed at these temperatures is the result of an interaction of subsilicates formed in the primary reaction stage with silica. At temperatures of 1600 - 1650°C, oxyorthosilicate is obtained in nearly pure condition, containing only small orthosilicate impurities. A phase diagram (Fig. 5) of annealed samples of the  $\text{Pr}_2\text{O}_3$ - $\text{SiO}_2$  system could be plotted on the basis of the studies performed. There are 5 figures, 4 tables, and 7 references: 3 Soviet and 4 non-Soviet. The three most recent references to English-language publications read as follows: R. E. Ferguson, E. Daniel Guth, L. Eyving, J. Amer. Chem. Soc. 76, 3890 (1954); E. Daniel Guth, H. R. Holden, N. C. Baenziger, Le Roy Eyring. J. Amer. Chem. Soc. 76, 5239 (1954); I. Warshaw, R. Roy, Bull. Amer. Cer. Soc. 38, N 4, 169 (1959).

Card 3/4

15 2230

26902

S/131/61/000/009/001/001

B101/B208

AUTHORS: Godina, N. A., and Keler, E. K.

TITLE: Stability of solid solutions in the systems  $ZrO_2 - MgO$ ;  
 $ZrO_2 - CaO$ ;  $HfO_2 - MgO$  and  $HfO_2 - CaO$

PERIODICAL: <sup>26</sup>Ogneupory, no. 9, 1961, 426 - 431

TEXT: The authors investigated the stability of solid solutions of  $ZrO_2$  and  $HfO_2$  with  $MgO$  and  $CaO$ . The starting materials were  $HfO_2$  (97.2% pure),  $ZrO_2$  (98.45% pure), and chemically pure alkaline-earth carbonates. The chemical phase analysis of the pressed samples consisting of 80%  $HfO_2$  (or  $ZrO_2$ ) and 20% alkaline-earth oxide which were annealed at  $1750^\circ C$  for 2 hr disclosed the formation of solid solutions in all samples. After additional annealing at  $1200^\circ C$  for 24 hr the solid solutions which contained  $MgO$  were decomposed. In order to study the kinetics of this decomposition,

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S/131/61/000/009/001/001

B101/B208

Stability of solid solutions...

samples of solid solutions were heated at 1200°C for various lengths of time. X-ray analysis and phase analysis confirmed the instability of the solid solutions in the systems  $\text{ZrO}_2 - \text{MgO}$  and  $\text{HfO}_2 - \text{MgO}$ , and a higher stability of the solid solutions with  $\text{CaO}$ . In the radiograph, the decomposition becomes manifest by the appearance of a monoclinic  $\text{HfO}_2$  or  $\text{ZrO}_2$  phase. On the assumption that the impurities contained in  $\text{ZrO}_2$  and  $\text{HfO}_2$  may influence the decomposition of solid solutions, special  $\text{ZrO}_2$  and  $\text{HfO}_2$  reagents of particularly high degree of purity were prepared (98.5 - 99.8  $\text{ZrO}_2$ ; 99.5  $\text{HfO}_2$ ). After annealing of these reagents with 20 mole%  $\text{MgO}$  or 20 mole%  $\text{CaO}$  no difference was found as compared with the initially used samples (98.45%  $\text{ZrO}_2$ , 97.2  $\text{HfO}_2$ ). After heating at 1200°C, X-ray analysis and chemical phase analysis disclosed, however, a higher stability of the solid solutions which had been prepared from high-purity reagents. While at 1200°C the solid  $\text{ZrO}_2$ - $\text{MgO}$  solutions from commercial  $\text{ZrO}_2$  (98.3% pure) completely decomposed into their components already after 15 - 20 hr, only

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Stability of solid solutions...

30% of the solid solution prepared from 99.8%  $ZrO_2$  were decomposed after 200 hr. There was no substantial difference between the solid solutions of  $ZrO_2$  and  $HfO_2$  with MgO and CaO. There are 6 figures, 4 tables, and 8 references: 5 Soviet and 3 non-Soviet. The two references to English-language publications read as follows: C. E. Curtis et al., Journ. Amer. Cer. Soc., 1954; no. 10, 458; P. Duwez et al., Journ. Amer. Cer. Soc., 1952, no. 5, 107. X

ASSOCIATION: Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry AS USSR)

Card 3/3

15 1962

212110

S/080/61/034/008/010/018  
D204/D305

AUTHORS

Keler, I. K., Godina, N. A. and Begen, R. G.

TITLE

Electron microscopic and thermographic study of  
solid phase reactions in the systems  $\text{HfO}_2$  -  $\text{BaO}$ ,  
 $\text{HfO}_2$  -  $\text{CaO}$  and  $\text{HfO}_2$  -  $\text{CaO}$

PERIODICAL

Izurnal prikladnoy khimii, v. 34, no. 8, 1961,  
1769-1775

TEXT In the present paper electron-microscopic and thermographic studies of the sintered mixtures are reported. Equimolecular mixtures of  $\text{HfO}_2$  (previously heated at  $1050^\circ\text{C}$ ) and  $\text{BaCO}_3$  and  $\text{CaCO}_3$  were heated to  $800 - 1000^\circ\text{C}$  and examined by electron microscopy and chemical phase analysis. In a specimen formed from  $\text{BaCO}_3$  -  $\text{HfO}_2$  heated to  $1000^\circ\text{C}$  for 15 minutes,  $12.2\% \text{ BaHfO}_3$  formed. The electron microscope showed, in addition to large  $\text{HfO}_2$  crystals, fine ( $< 0.1 \mu$ ) crystals of  $\text{BaHfO}_3$ . At  $800^\circ\text{C}$ ,  $7.3\% \text{ BaHfO}_3$  is formed and stratification of  $\text{HfO}_2$  crystals observed. Using the device of Keler and Kuznetsov, (Rei 3: D.N. 1953 vol. 88 no. 6, 1031), card 1/3

Electron microscopic...

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heating at a rate of 12 - 13° per minute, composite thermal analysis of the  $\text{HfO}_2$  -  $\text{BaCO}_3$  mixture was carried out giving a thermogram. In  $\text{SrCO}_3$  -  $\text{HfO}_2$  mixtures heated at 1000° for 15 minutes, small crystals with a characteristic dendritic structure were observed and are attributed to solvability of  $\text{SrCO}_3$  decomposition products by the 95% alcohol used in preparing the specimen for electron microscopy. When the same mixture was heated for 2 hours, no dendrites were observed. With  $\text{BaCO}_3$ , the structures observed are similar to those with  $\text{SrCO}_3$ . In none of the 3 systems studied was formation of a dense layer around  $\text{HfO}_2$  grains observed, this being attributed to the molecular volume of the reaction products exceeding that of  $\text{HfO}_2$ . Products obtained at 1000 - 1200° are porous and of loose structure. During the solid-phase reactions, the reaction products are stripped off the reacting surface to expose  $\text{HfO}_2$  grains. Under these conditions, the role of volumetric diffusion becomes less important and the reaction rate is basically determined by the rate of chemical interaction of the mixture, dense non-porous products cannot be produced in one process but the formation of open-structure products facilitates pulverization. It is, therefore, advisable, in making

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Electron microscopic

S/080/61/054/003/010/018  
D204/D505

ceramic materials from these products, to carry out synthesis separately, subsequently pulverizing, pressing and sintering. There are 6 figures and 10 references: 7 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: G. J. Burdett, J. H. Conner and J. W. Johnston, J. Amer. Cer. Soc. 1954, vol. 37, no. 10, 458; G. H. B. Lovell, Trans. Brit. Cer. Soc. 1951, vol. 50, 315; J. H. Chesters, A. Lee and J. Mackenzie, Trans. Brit. Cer. 1949, vol. 48, 260.

UNCLASSIFIED

November 14, 1960

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L 38504-65 EFF(n)-2/EPR/EWA(c)/EWT(1)/EWT(m)/EWG(m)/EWP(b)/EWP(h)/EWP(t) Pa-L/  
Pu-L/Feb IJP(c) AT/WH/WJ/JD/JG/GS

ACCESSION NR: AT5007737

S/0000/63/000/000/0115/0227 4/6

AUTHOR: Godina, N. A.

TITLE: Solid-state reactions in systems of zirconium, hafnium, and cerium oxides with  
alkaline earth oxides

SOURCE: AN SSSR. Institut khimii silikatov. Silikaty i okisly v khimii vysokikh  
temperatur (Silicates and oxides in high-temperature chemistry). Moscow, 1963, 215-227

TOPIC TAGS: solid state reaction, zirconium dioxide, hafnium dioxide, cerium oxide,  
alkaline earth oxide, refractory oxide

ABSTRACT: This work was devoted to the study of solid state reactions in binary oxide  
systems: zirconium dioxide and hafnium dioxide with certain oxides of elements of  
groups II, III, and IV of the periodic system. It was found that the formation of compounds  
of the general formula  $ABO_3$  is associated with the peeling of the product from the  
reacting surface, which explains the high rate of such reactions. In the systems  $ZrO_2 -$   
 $CaO$ ,  $HfO_2 - CaO$  and  $CeO_2 - SrO$ , the formation of solid solutions occurs in two stages:  
first, the compound  $ABO_3$  is formed, which, on further heating, yields a solid solution.  
The stepwise character of the formation of solid solutions served as the basis for the

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ACCESSION NR: AT5007737

development of a new method of preparation of cast products from zirconium dioxide. The study of systems involving hafnium dioxide revealed a complete similarity to the course of the solid-phase processes in systems containing  $ZrO_2$ , although the temperatures of polymorphic transformations were different. Hafnium dioxide was found to be a very useful admixture in zirconium dioxide refractories. Orig. art. has: 4 figures, 2 tables and 6 formulas.

ASSOCIATION: none

SUBMITTED: 0000063

ENCL: 00

SUB CODE: IC, MT

NO REF SOV: 019

OTHER: 009

Card 2/2 *145*

L 23801-65 EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPI/T/EWP(t)/EWP(b)  
Pr-4/PS-4/Pu-4 IJP(c) JD/WW/JG/WH

ACCESSION NR: AP4049457

S/0131/04/000/011/0513/0520

AUTHOR: Mandal, G., Godina, N.A., Keler, E.K.

TITLE: Effect of admixtures of silica, titanium dioxide, and aluminum oxide on the properties and phase composition of zirconium materials stabilized with cerium dioxide

SOURCE: Ogneupory\*, no. 11, 1984, 613-620

TOPIC TAGS: silica, titania, alumina, ceria, zirconium compound, zirconia stabilization, zirconia phase composition

ABSTRACT: For the practical application of ceria ( $\text{CeO}_2$ ) as a stabilizer of zirconia ( $\text{ZrO}_2$ ) information was needed on the effect of  $\text{TiO}_2$ ,  $\text{SiO}_2$ , and  $\text{Al}_2\text{O}_3$ , which are often found in commercial zirconia, on the physical and technical properties of stabilized zirconia. The starting material was commercial zirconia of the following composition: 99.28%  $\text{ZrO}_2 + \text{HfO}_2$ ; 0.30%  $\text{SiO}_2$ ; 0.06%  $\text{Al}_2\text{O}_3$ ; 0.03%  $\text{Fe}_2\text{O}_3$ ; traces of  $\text{TiO}_2$ ; the calcination loss at 100°C was 0.22%. Spectral analysis revealed Si, Al, Fe, Mg, Na, K. The content of  $\text{HfO}_2$  was not determined. It was found that when zirconia is stabilized with ceria an admixture of silica is impermissible since the properties of the refractory markedly deteriorate. Upon adding 3% alumina and roasting at 6150C the properties of the  $\text{CeO}_2$ -

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ACCESSION NR: AP4049457

stabilized zirconia remained virtually constant except for refractoriness-under-load, which dropped appreciably. The addition of  $\text{TiO}_2$  made it possible to obtain sintered material at 1650C without substantially affecting its physical and technical properties, except for refractoriness-under-load, which still dropped. Silicates of trivalent cerium formed in the zirconia-ceria-silica compositions at 1600-1650C, while the tetragonal and cubic solid solutions of ceria and zirconia were decomposed. The addition of alumina up to a ratio of 1:1:1 for zirconia, alumina, and ceria with roasting up to 1650C did not affect the phase composition of the zirconia-ceria reaction products. In the  $\text{ZrO}_2 + \text{CeO}_2 + \text{TiO}_2$  compositions, a liquid phase formed at 1300C which promoted equilibrium in these compositions. The formation of ternary compounds or the titanates of zirconium and cerium was not detected. Orig. art. has: 4 tables and 6 figures.

ASSOCIATION: Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AN SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 007

OTHER: 004

Card 2/2

GOLINA, N. I. ...

Formation of ...  
Izv. Akad. Nauk SSSR, Ser. Khim. no. 1: 1961, 174. (1961)

1. Institut Khimii Silikatev im. I. V. Gubkina, Akad. Nauk SSSR.  
Submitted August 19, 1960.

L 00651-67 EWT(m)/I/EWP(e)/EWP(t)/ETI IJP(c) AT/MH/JO/EG  
ACC NR: AP6008498 (A) SOURCE CODE: UR/0062/66/000/001/0024/0031  
18  
C

AUTHOR: Godina, N. A.; Keler, E. K.

ORG: Institute of Silicate Chemistry im. I. V. Grebenshchikov, Academy of Sciences, SSSR (Institut khimii silikatov, Akademii nauk SSSR)

TITLE: Conditions for the formation of aluminates of lanthanum, praseodymium, and neodymium

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1966, 24-31

TOPIC TAGS: oxide formation, aluminate, rare earth element, lanthanum, praseodymium, neodymium

ABSTRACT: This article is devoted to a study of the conditions for the formation of compounds in the  $\text{La}_2\text{O}_3\text{-Al}_2\text{O}_3$ ,  $\text{Pr}_2\text{O}_3\text{-Al}_2\text{O}_3$ , and  $\text{Nd}_2\text{O}_3\text{-Al}_2\text{O}_3$  systems, for which purpose the authors employ x-ray, thermal, and chemical phase analyses. The conditions of the formation of the aluminates are studied in the interaction of the oxides of lanthanum, praseodymium, and neodymium with  $\alpha$ -alumina, aluminum nitrate, and during coprecipitation of solutions containing cations of lanthanides and of aluminum. The investigation revealed that two types of compounds,  $\text{Ln}_2\text{O}_3 \cdot \text{Al}_2\text{O}_3$  and  $\text{Ln}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$  are formed in the systems discussed. The compound  $\text{Nd}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$  was obtained for the first time. The process of the formation of the compound  $\text{Ln}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$  is stepwise. During the interaction of alumina oxides with rare-earth elements a monoaluminate is formed as an intermediate

Card 1/2

UDC: 539.26+541.11+542.928+546.65

L 00651-67

ACC NR. AP6008498

stage of the reaction which, upon a further increase of temperature, reacts with alumina with the formation of the compound  $\text{Ln}_2\text{O}_3 \cdot 11\text{Al}_2\text{O}_3$ . The production of monoaluminates from  $\alpha\text{-Al}_2\text{O}_3$  and from the oxides of rare-earth elements requires a temperature of 1600-1650C, whereas when aluminum nitrate is used synthesis is accomplished at 1200C. The x-ray amorphous gels formed upon coprecipitation of equimolar compositions which do not crystallize even up to a temperature of 800C are chemical compounds even at as low a temperature as 400C. The  $\gamma$ -form of  $\text{Al}_2\text{O}_3$  which forms upon decomposition of the nitrate and hydroxide of aluminum is stabilized up to a temperature of 1300C in the presence of the oxides of rare-earth elements. Orig. art. has: 1 table and 7 figures.

SUB CODE: 07/ SUBM DATE: 19Aug63/ ORIG REF: 015/ OTH REF: 004

Card 2/2 pb

[illegible]

ACC NR: AP6029849

(A)

SOURCE CODE: UR/0032/66/032/008/0909/0910

AUTHOR: Godina, N. A.

ORG: Institute of Silicate Chemistry, Academy of Sciences SSSR (Institut Khimii Silikatov Akademii Nauk SSSR)

TITLE: Phase chemical analysis of the zirconium containing materials

SOURCE: Zavodskaya laboratoriya, v. 32, no. 8, 1966, 909-910

TOPIC TAGS: phase composition, phase analysis, zirconium compound, phase diagram, solution property

ABSTRACT: A detailed analytical procedure is given for determining the contents of  $ZrO_2$ ,  $MgO$ ,  $CaO$ ,  $CaZrO_3$ , and of mixtures thereof in various zirconium-base ceramic materials. In essence, the method is based on the difference in solubility of these various oxides in hot concentrated hydrochloric acid and 25% aqueous ammonium nitrate. Thus, in the absence of magnesium- and aluminum oxides, the  $CaO$  can be selectively dissolved in 25% aqueous ammonium nitrate and the liberated ammonia can be titrated with 0.1 normal  $HCl$ . The  $ZrO_2$  content (in zirconate) can be determined by selective dissolving in 50%  $HCl$  followed by either titration with complexon III or gravimetrically by precipitation with ammonia. The accuracy of the proposed analytical procedure is claimed to be equal to 1%. Orig. art. has: no figures, tables and formulas.

SUB CODE: 07,11/ SUBM DATE: 00/ ORIG REF: 003/ OTH REF: 001

UDC: 543.7

Card 1/1

ACC NR: AP6031942

SOURCE CODE: UR/0080/66/039/009/1913/1920

AUTHOR: Savchenko, Ye. P.; Godina, N. A.; Keler, E. K.

ORG: Institute of the Chemistry of Silicates, AN SSSR (Institut khimii silikatov AN SSSR)

TITLE: Solid state reactions of niobium pentoxide with lanthanum, cerium, and praseodymium oxides

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 9, 1966, 1913-1920

TOPIC TAGS: solid state reaction, cerium oxide, lanthanum oxide, praseodymium oxide, niobium pentoxide, niobate, chemical reaction kinetics, ceramic material, niobium compound

ABSTRACT: The purpose of the study was to determine the nature, conditions of formation, and properties of the compounds in the  $\text{Ln}_2\text{O}_3\text{-Nb}_2\text{O}_5$  systems, where  $\text{Ln} = \text{La}$ ,  $\text{Ce}$ , or  $\text{Pr}$ . The study is of interest for production technology of ceramic materials based on the rare-earth metal niobates. Formation of the niobates of three types:  $\text{Ln}_3\text{NbO}_7$ ,  $\text{LnNbO}_4$ , and  $\text{LnNb}_3\text{O}_9$  was ascertained in the products of solid state reactions in the 900—1650C range, between  $\text{Nb}_2\text{O}_5$  and  $\text{La}_2\text{O}_3$ ,  $\text{Pr}_6\text{O}_{11}$ , or  $\text{CeO}_2$ . The effects were determined of the composition of the starting mixture of pure oxides, reaction temperature and duration on composition of the products, using x-ray, chemical, and differential thermal analysis for identification of the phases in the product. A stepwise formation of niobates was established in all three systems in the sequence:

Card 1/2

UDC: 546.882-31+546.654-31+546.655-31+546.656-31

ACC NR: AP6031942

$\text{Ln}_3\text{NbO}_7$ - $\text{LnNbO}_4$ - $\text{LnNb}_3\text{O}_9$ . X-ray analysis showed that La, Pr, and Ce niobates of each type are isostructural. Interplanar spacings, density, and melting point were determined for each of the pure niobates prepared. Metaniobates  $\text{LnNb}_3\text{O}_9$  melted incongruently yielding orthoniobates,  $\text{LnNbO}_4$ , and a liquid. Reactivity of  $\text{CeO}_2$  versus  $\text{Nb}_2\text{O}_5$  was lower than that of  $\text{La}_2\text{O}_3$  and  $\text{Pr}_6\text{O}_{11}$  versus  $\text{Nb}_2\text{O}_5$ , but it was higher than versus  $\text{SiO}_2$  and  $\text{Al}_2\text{O}_3$ . Cerium niobates are more stable in air than silicates and aluminates. Orig. art. has: 3 tables and 6 figures. [JK]

SUB CODE: 07/ SUBM DATE: 12Jul64/ ORIG REF: 011/ OTH REF: 003/ ATD PRESS: 5084

Cord 2/2

GODINA, S.M.

Change in the taste sensitivity of the tongue following desqua-  
nation. Stomatologiya 37 no.6:7-10 M-D '58 (MIRA 11:12)

1. Iz kafedry khirurgicheskoy stomatologii (zav. - prof. A.I. Yevdokimov) kafedry terapevticheskoy stomatologii (zav. - prof. Ye.Ye. Platonov) i kafedry normal'noy fiziologii (zav. - prof. P.G. Snyakin) Moskovskogo meditsinskogo stomatologicheskogo instituta (dir. - dots. G.N. Beletskiy).  
(TONGUE--DISEASES)  
(TASTE)

AVIRON, S.M., kand. tekhn.nauk, nauchn. sotr.; GOLIK, I. kand. tekhn.nauk, nauchn. sotr.; GOLIK, S.A., kand. tekhn. nauk, nauchn. sotr.; LEYTE, L.G., kand. tekhn. nauk, nauchn. sotr.; PLITONOVA, Ye.I., nauchn. sotr.; RYKOVA, N.V., kand. tekhn. nauk, nauchn. sotr.; Prinyati uchastiye: ETCOV, V.A., nauchn. sotr.; FILATOVA, M.Y., nauchn. sotr.; NIKITIN, G.N., nauchn. sotr.; ROMASHOV, A.I.; SPINER, F.Ye., red.

[Recovery and use of secondary wool in consumers' goods] Proluchenie i primeneniye vtorichnoi shersti v izdeliyakh narodnogo potrebleniya. [By] S.M.Avirom i dr. Moskva, Ind-vo "Legkaya industriya," 1964. 260 p. (MIR 1714)

1. Nachal'nik pryadil'nogo tsokha Puzhkinskoy fabрики No.13 (for Romashov).

KRASHENINNIKOV, Sergey Sergeyevich; GODINER, F.Ye., red.; RUMYANTSEV,  
M.M., red.; MUKHINA, Ye.S., tekhn. red.

[Methods for detecting faults in a radio receiver] Kak na-  
khodit' neispravnosti v priemnike. Moskva, Izd-vo DOSAAF,  
1961. 39 p. (MIRA 15:2)

(Radio--Repairing)

SHEYKO, Vladimir Pavlovich; GODINER, F.Ye., red.; LOMANOVICH, V.A.,  
red.; KOROLEV, A.V., tekhn. red.

[Antennas for amateur radio transmitters]Antenny liubitel'-  
skikh radiostantsii. Moskva, DOSAAF, 1962. 123 p.

(MIRA 15:9)

(Amateur radio stations--Equipment and supplies)

(Radio--Antennas)

KUZ'MICHEV, Flegon Ivanovich; LEVIN, Mikhail Iosifovich; GODINER, F.Ye.,  
red.; GORBATKIN, B.G., tekhn. red.

[Manufacture of felt footwear and felt]Proizvodstvo valianoi obu-  
vi i voilokov. Moskva, Gosmestpromizdat, 1962. 277 p.

(MIRA 16:1)

(Boots and shoes, Felt) (Feltwork)

BOGOLYUBSKIY, G.N.; BURLINOV, I.I.; VINOGRADOV, L.V.; VOZNESENSKIY,  
V.V.; DANILYUK, V.S.; ZUBKIN, A.S.; IL'YASHEV, A.S.; KORABLEV,  
M.D.; LEEDEVA, Yu.A.; MAKAROV, Yu.K.; MIROSHNIKOV, I.P.;  
NOVICHENKO, I.P.; POPOV, A.V.; SEREBRAKOV, V.A.; VARENNIKOV,  
I.S., red.; GODINER, F.Ye., red.; SORKIN, M.Z., tekhn. red.

[Protecting the population from present-day means of  
destruction] Zashchita naseleniya ot sovremennykh sredstv po-  
razheniya; uchebnoe posobie dlia organizatsii DOSAAF. Pod ob-  
shchei red. I.S.Varennikova i L.V.Vinogradova. Izd.2., perer.  
i dop. Moskva, Izd-vo DOSAAF, 1962. 254 p. (MIRA 16:4)  
(Civil defense)

DVOYENOSOV, Dzhon Vladimirovich; ZAMYATIN, Valeriy Mikhaylovich;  
SNESHKO, Yuriy Ivanovich; PADEYEVA, N.N., kand. tekhn.  
nauk, red.; GODINER, F.Ye., red.; SORKIN, M.Z., tekhn.  
red.

[Loads acting on a glider in flight] Nagruzki, deistvu-  
iushchie na planer v polete. Moskva, Izd-vo DOSAAF,  
1963. 138 p. (MIRA 16:8)

(Gliders (Aeronautics))

ARSEN'YEV, N.; GODINER, F.Ye., red.; YURTAYKINA, N.N., tekhn. red.

[Heroes, signalmen] Geroy - svyazisty. Moskva, Izd-vo  
DOSAAF, 1963. 145 p. (MIRA 16:12)  
(Communications, Military)  
(World War, 1939-1945--Communications)

POKROVSKIY, N.S., red.; GODINER, E.Ye., red.; SORKIN, M.Z., tekhn.  
red.

[Methods of protection from nuclear, chemical and  
bacteriological weapons] Sposoby zashchity ot iadernogo,  
khimicheskogo i bakteriologicheskogo oruzhiia; uchebno-  
metodicheskoe posobie dlia obshchestvennykh instruktorov.  
Pod obshchei red. N.S.Pokrovskogo. Moskva, Izd-vo  
DOSAAF, 1963. 126 p. (MIRA 17:2)

1. Vsesoyuznoye dcbrovol'noye obshchestvo sodeystviya  
armii, aviatsii i flotu.

PETROV, Viktor Pavlovich; SELEZNEVA, V.P., doktor tekhn. nauk, red.;  
GODINER, F.Ye., red.; SORKIN, M.Z., tekhn. red.

[Rockets of peace and war] Rakety mira i voiny. Moskva,  
Izd-vo DOSAAF, 1963. 170 p. (MIRA 17:4)

MEDVEDEV, Valentin Alekseyevich; GODINER, F.Ye., red.; SORKIN, M.Z.,  
tekhn. red.

[Protective measures in areas of radioactive contamination]  
Mery zashchity v zonakh radioaktivnogo zarazheniya. Moskva,  
Izd-vo DOSAAF, 1964. 29 p. (MIRA 17:3)

LOMANOVICH, V.A.; RUMYANTSEV, M.M.; KAZANSKIY, N.V., red.; GODINER,  
F.Ye., red.; ELAZHENKOVA, G.I., tekhn. red.

[Manual for training specialists in the repair of radio re-  
ceivers] Posobie dlia podgotovki masterov po remontu radio-  
priemnikov. Moskva, Izd-vo DOSAAF, 1964. 364 p.  
(MIRA 17:3)

KOTLUKOV, Konstantin Grigor'yevich; MOSKALEV, Vladimir Dem'yanovich;  
GODINER, F.Ye., red.; SORKIN, M.Z., tekhn. red.

[Responsibilities of the population concerning civil defense  
and rules of conduct under conditions of enemy attack] Obia-  
zannosti naseleniia po grazhdanskoi oborone i pravila pove-  
deniia v usloviakh napadeniia protivnika. Moskva, Izd-vo  
DOSAAF, 1964. 45 p. (MIRA 17:2)

RUMYANTSEV, Mikhail Mikhaylovich; LUGVIN, V.G., spots. red.;  
GODINER, F.Ye., red.; BLAZHENKOVA, G.I., tekhn. red.

[Pocket radios] Liubitel'skie karmannye priemniki. Mo-  
skva, DOSAAF, 1964. 100 p. (MIRA 17:4)

BUNINOLICH, Sergey Georgiyevich; YAYLENKO, Leonid Petrovich;  
KROZOROVSKIY, Yu.N., spets. red.; GODINER, F.Ye., red.

[Amateur single-sideband radio communication techniques]  
Tekhnika liubitel'skoi odnopolosnoi radiosv'язi. Mo-  
skva, Izd-vo DOSAAF, 1964. 243 p. (MIRA 17:12)

NIKITIN, Goerghi Antonovich; GODINER, F.Ye., red.

[Serving in our army] V rodnuu armiiu sluzhit'. Mo-  
skva, Izd-vo DOSAAF, 1964. 66 p. (MIRA 17:12)

KOVALENKO, V.Ya.; GODINER, F.Ye., red.

[Protection of foodstuffs and water from agents of mass  
destruction] Zashchita pishchevykh produktov i vody ot  
sredstv kassovogo porazheniia. Moskva, EOAAAF, 1964. 29 p.  
(MIRA 17:12)

RUBINYANTSEV, Mikhail Mikheylovich; MOROZOV, V.P., spec. red.;  
GODINER, F.Ye., red.

[Practice in the adjustment of pocket radios] Praktika  
nalazhivaniia lyubitel'skikh karmannykh priemnikov. Mo-  
skva, DOSAAF, 1965. 110 p. (MIRA 17:12)

ГЕЛЛИН, Бенджамин Петрович; Геллин, Б.П., ред.

[The young sailor of the All-Union Volunteer Society for  
Assistance to the Army, Navy, and Air Force] Юный моряк  
ВВС ВМФ. Изд. 2. Москва, ВВС ВМФ, 1966. 149 p.

(MIRA 1810)

TARASOV-AGALAKOV, N.A.; POPOVSKIY, A.Yu.; ZODINER, F.Ye., red.

[Extinction of fires in the focus of a nuclear explosion]  
Tushenie pozharov v iadernom ochage porazheniya. Moskva,  
DOSAAF, 1965. 41 p. (MIRA 18:6)

PAVLIY, Yuriy Grigori'yevich; TOIVILEV, Mikhail Porfir'yevich;  
AL'SHITS, Z.S., spets. red.; GODINER, F.Ye., red.

[Evacuation of the population of cities, a method of  
protection from nuclear weapons] Evakuatsia naseleniya  
gorodov - sposob zashchity ot iadernogo oruzhiya. Mos-  
skva, DOSAAF, 1965. 29 p. (MIRA 1847)

MOROZOV, Vitaliy Panteleymonovich; RYZHOV, V.F., spets. red.;  
GODINER, F.Ye., red.

[Radio-amateur transistor testing devices] Radiolubitel'skie pribory dlia proverki tranzistorov. Moskva, DOSAAF, 1965. 58 p. (MIRA 18:10)

ISCOVICI, P.; GODINI, G.

Waiting line with priority serving stations. Comunicarile  
AR 13 no.10:871-878 0 '63.

1. Comunicare prezentata de academician Gh. Mihoc.

GODINOV, V.M.

Godinov, V.M. "On the receptor apparatus of the mesenteric arteries in the cat", Trudy Voen.-  
mor. med. akad., Vol. XI, 1948, p.40-45, - Bibliog: 27 items.

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 9, 1949)

GODINOV, V.M.

Godinov, V.M. "On a method of differential dyeing of nerve fibers in a vascular wall",  
Trudy Voen.-mor. med. akad., Vol. XI, 1948, p. 46-48.

SO: U-3042, 11 March 53, 1953, (Letopis 'nykh Statey, No. 9, 1949)



1. GODINOV, V. M.
2. USSR (600)
4. Bile Ducts
7. Hepatic and biliary nerves i. man. V. M. Godinov. Arkhiv. anat.gist. i embr. 29, no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

GODINOV, V.M.

Angioneural connections in the midbrain in reptiles. Arkh.anat.  
gist.i embr. 38 no.2:48-51 F '60. (MIRA 14:6)

1. Kafedra normal'noy anatomii (nachal'nik - chlen-korrespondent  
AMN SSSR prof. B.A.Dolgo-Saburov) Voenno-meditsinskoy ordena  
Lenina akademii imeni S.M.Kirova.  
(BRAIN) (NERVOUS SYSTEM--REPTILES)

GODINOV, V.M. (Leningrad, ul. Savushkina, 14, kv. 101)

Innervation of the thymus. Arkh.anat.gist.1 embr. 40 no.4:28-34  
Ap '61. (MIRA 14:5)

1. Kafedra normal'noy anatomii (nachal'nik - chlen-korrespondent  
AMN SSSR prof. B.A.Dolgo-Saburov [deceased]) Voenno-meditsinskoy  
ordena Lenina akademii imeni S.M.Kirova.  
(THYMUS GLAND--INNERVATION)

DAVIDENKOV, S.I.; GODINOVA, A.N.

Hosological limits of migraine. Ozh. klin. nevr. no.2:5-19 '64  
(MIRA 18:1)

GODINOVA, A.M

Genetic analysis of migraines. Zhur. nevr. i psikh. 65 no.8:  
1132-1138 '65. (MIRA 18:8)

1. laboratoriya meditsinskoy genetiki (zaveduyushchiy - prof.  
Ye.F. Davidenkova) Nauchno-issledovatel'skogo Instituta onko-  
logii AMN SSSR, Leningrad.

DAVLENKOVA, Ye.P.; LUKASHIN, A.I.; KURBANOV, M.A.; KURBANOV, V.B.;  
Ye.A.; YEREMENKOYA, Ye.K.

Role of maternal pathology in Down's disease. *Ann. nerv. Dis.* 1963, 63 no.7:1052-1057. (1963 17:7)

1. Laboratoriya meditsinskoy genetiki (zav. - prof. Ye.F. Davidenkova) Instituta onkologii AMI SSSR, Leningrad.

1. Pavlov, A.P.

Electroencephalographic changes in Down's syndrome. Izv. Akad. nauk. i psikh. 63 no. 7:1952-1964. 163. (MIRA 1979)

1. Laboratoriya meditsinskoy genetiki (rav. - prof. Ye.F. Pavlidenkova) Nauchno-issledovatel'skogo instituta onkologii (direktor - prof. A.I. Serebrov) AMN SSSR, Leningrad.

MINCULESCU, M.; DRAGANESCU, N.; ILIESCU, Al.; POPOVICI, F.;  
GODJA, E.; MARINESCU, S.

Encephalitis in infants with arborviruses. Stud. cercet.  
inframicrobiol. 14 no.5:619-624 '63.

1. Comunicare prezentata la Institutul de inframicrobiologie  
al Academiei R.P.R.

(ENCEPHALITIS) (ENCEPHALITIS VIRUSES)  
(ARBORVIRUS INFECTIONS)

L 9883-66 EWT(m) DIAAP  
ACC NR: AP5027378

SOURCE CODE: UR/0371/65/000/005/0026/0034

AUTHOR: Abrams, I.; Abrams, I. A.; Veveris, O.; Godkalns, A.; Kalis, H.;  
Veveris, O. E.; Godkalns, A. K.; Kalis, Kh. E. 52  
E

ORG: IFANL

ORG: Institute of Physics, AN Latv. SSR (Institut fiziki AN Latv. SSR)

TITLE: Weakening gamma radiation from cylindrical sources by cylindrical shielding

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 5,  
1965, 26-34

TOPIC TAGS: nuclear power, gamma radiation, gamma counter

ABSTRACT: With the development of nuclear energy, radiation protection became a major problem. A method was developed for counting the dosage rate of gamma radiation originating in a cylindrical source and shielded by a cylinder consisting of two layers of iron with a layer of lead in between. Counting was done by an electronic computer, with consideration of the multiple  $\gamma$ -ray scattering in the

1/2

L 9883-66

ACC NR: AP5027378

shielding material. The values R and h characterizing the dimensions of the cylindrical sources were selected, taking into consideration the major part of the existing sources of Co<sup>60</sup>. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 18/ SUBM DATE: 04Mar65/

NR REF SOV: 010/ OTHER: 000

*Feb*  
2/2

KRISTOFEL', N. [Kristoffel, N.]; GODKALNS, A.

Theory of complex luminiscence centers. Part 1. Izv. AN Est.  
SSR. Ser. fiz.-mat. i tekhn. nauk 14 no. 4:507-525 '65  
(MIRA 19:2)

1. Institut fiziki i astronomii AN Estonskoy SSR. Submitted  
November 23, 1964.

L 32949-66 INT(1) IJP(c)

ACC NR: AP6014856

SOURCE CODE: UR/0023/65/C00/004/0507/0527

AUTHOR: Kristofel', N. -- Kristoffel, N.; Godkalns, A.

ORG: Institute of Physics and Astronomy, Academy of Sciences Estonian SSR (Institut fiziki i astronomii Akademii nauk Estonskoy SSR)

TITLE: On the theory of complex luminescence centers <sup>21</sup> Part I

SOURCE: AN EstSSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no. 4, 1965, 507-527

TOPIC TAGS: luminescence center, impurity center, perturbation theory, crystal lattice vacancy

ABSTRACT: The paper discusses an impurity center in a static NaCl-type lattice, consisting of a divalent activator ion at a lattice point and a vacancy of a like ion of the lattice. General formulas are derived for the energy of a center with a mercury-like activator in the ground and split excited electron states. The corresponding transition energies for centers with  $C_{4v}$  and  $C_{2v}$  symmetry are derived in terms of the wave functions of the ions and considering the effect of the field of the point lattice. The energy of a central ion in a lattice with defects, the energy of an impurity ion with an associated vacancy (considering the ground and excited state of the impurity),

Card 1/2

L 32949-66

ACC NR: AP6014856

and the energy of optical absorption were calculated. Orig. art. has: 91 formulas.

SUB CODE: 20/

SUBM DATE: 23Nov64/

ORIG REF: 032/

OTH REF: 010

Card 2/2

AUTHOR: Godkov, A.I. 602  
TITLE: A Method of Machining Accurate Flat Surfaces (Sposob Polucheniya Tochnykh Ploskostey).  
PERIODICAL: "Stanki i Instrument" (Machine Tools and Cutting Tools, No.3, 1957, pp.37-38. (U.S.S.R.).  
ABSTRACT: The use of a special adjustable multi-tooth long cylindrical milling cutter designed in the manner of a boring bar with a multiplicity of boring bits is described, intended for milling surface table faces between the planing and the lapping operations.  
6 illustrations including 3 photographs.

Card 1/1

USSR / Plant Physiology. Mineral Nutrition.

I-2

Abstr Jour : Ref Zhur Biol., No 22, 1956, No 99928

Author : Godkov, M. M.

Inst : Moscow Agricultural Academy in Timiryazev

Title : Relationship Between the Development of Legume Plants  
and the Phosphorus Potassium Ratio of the Nutrient Medium

Orig Pub : Dokl. Mosk. S.-Kh. Akad. in. K. A. Timiryazev, No 31, 32-  
37, 1957

Abstract : Lupine, soya, lucerne and bean were grown in sand cultures  
on nutrient mixtures with various P-K ratios. The ratio  
found to be most favorable was an increased provision of K  
to plants at a relatively low level of P. Upon altering  
the  $P_2O_5:K_2O$  ratio from 1:1 to 4:1, the weight of lupine  
plants decreased from 49.2 to 40 grams, and that of beans  
from 22.2 to 2.7 grams per vessel. Analogous data was  
obtained with respect to the other legumes. Experiments

Card 1/2

GODL, B. V.

English-Russian automotive dictionary Moskva, Gos. izd-vo tekhniko-teoret.  
lit-ry, 1954. 840 p. (55-20674)

TL9.G6 1954

Z/056/62/019/005/002/008

1037/1237

AUTHORS: Radwan, M. and Godlecoski, Z.

TITLE: Radiographic detection of faults in casts

PERIODICAL: Přehled technické a hospodářské literatury Hutnictví a strojírenství, v. 19, no. 5, 1962, 273, abstract HS 62-3482. (Przegl. Odlew., v. 11, no. 12, 1961, 360-365)

TEXT: The limits of detection of faults in casts by irradiation with gamma and X-rays. The use of radioactive isotopes for checking the quality of the cast. Results of the check for faulty casts by radiographic methods. There are 14 figures and 8 references.

[Abstracter's note: Complete translation.]

Card 1/1

GODLEVSKAYA, M. V.

14/4985

USSR/Medicine - Soil, Bacteriology  
Medicine - Bacteria

Jun 48

"Methods for Determining the Presence of Intestinal  
Bacteria in Soils," M. V. Godlevskaya, Chair of  
Gen Hygiene, Saratov Med Inst, 4 pp

"Gig i San" No 6

Discusses various methods of soil analysis.

14/4985

SERGIYEV, P.G.; NABOKOV, V.A.; ZALUTSKAYA, L.I.; GODLEVSKAYA, N.L.

Experiment in the control of winged insects under natural conditions in the Volga-Akhtyuba river valley; work results of the joint expedition of the Institutes of Malaria, Medical Parasitology and Helminthology of the Ministries of Public Health of the U.S.S.R. and the R.S.F.S.R. and of the Stalingrad Province and the Central Akhtyuba District Malaria Control Stations during the 1952 season. Med.paraz.i paraz.bol. no.2:142-152 Mr-Ap '53. (MLRA 6:6)

(Akhtyuba River Valley--Insects as carriers of contagion) (Volga River Valley--Insects as carriers of contagion)

GODLEVSKAYA, T. E.

"The Composition of Grass Mixtures for Fodder-Crop Rotation Under the Conditions in Leningradskaya Oblast and the Structure of the Yield of Perennial Grasses." Cand Agr Sci, Leningrad Agricultural Inst, Leningrad-Pushkin, 1953. (RZhBiol, No 8, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)  
SC: Sum. No. 556, 24 Jun 55

USSR/Cultivated Plants - Fodders.

M-4

Abs Jour : Ref Zhur - Biol., No 7, 1958, 29831

Author : Godlevskaya, T.R.

Inst : Leningrad Agricultural Institute.

Title : A Contribution to the Problem of the Grass Mixture Composition for Fodder Crop Rotations in Leningradskaya Oblast'

Orig Pub : Zap. leningr. s.-kh. in-ta, 1956, vyp. 11, 289-299

Abstract : The inclusion of alfalfa in the grass mixture (at least 30-40% of the full seeding norm) alongside of clover provided the increased productivity of the mixture during the course of 5 years of use. Each crop yields a higher hay harvest in different years. Each of the leguminous components must be sown in a quantity of at least 30-40% of the full seeding rate without reducing the planting

Card 1/2

- 29 -

LARIN, Ivan Vasil'yevich, akademik; GODLEVSKAYA, Tat'yana Robertovna,  
kand.sel'skokhoz.nauk; LEONOVA, T.S., red.; RAKITIN, I.T.,  
tekhn.red.

[Improvement of natural meadows and pastures] Uluchshenie  
prirodnikh senokosov i pastbishch. Moskva, Izd-vo "Znanie,"  
1961. (Vsesoiuznoe obshchestvo po rasprostraneniю politicheskikh  
i nauchnykh znaniy. Ser.5, Sel'skoe khoziaistvo, no.10).

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni V.I.  
Lenina (for Larin).

(Pastures and meadows)

VOLKOVINSKIY, Vasiliiy Ivanovich [Volkovyns'kyi, V.I.]; GODLEVSKAYA, V.  
[Hodlevs'ka, V.], red.; MIL'KIN, Yu., tekhn. red.

[Modern Indonesia] Suchasna Indoneziia. Kyiv, Derzh. vyd-vo polit.  
lit-ry URSR, 1960. 87 p. (MIRA 14:10)  
(Indonesia—Politics and government)  
(Indonesia—Economic conditions)

BOTVINOV, Aleksandr Ignat'yevich [Botvynov, O.I.]; GODLEVSKAYA, V. [Hodlevs'ka, V.], red.; MEYEROVICH, S. [Meierovych, S.], tekhn. red.

[Under the Soviet stars; on the 20th anniversary of the liberation of Bukovina] Pid zoreiu Rodians'koi vlady; do dvadtsiatyrichchia z dnia vyzzvolennia Bukovyny. Kyiv, Derzh. vyd-vo polit. lit-ry URSR, 1960. 91 p.  
(MIRA 14:10)

1. Sekretar' Chernivetskogo oblastnogo komiteta Kommunisticheskoy partii Ukrainy (for Botvinov).  
(Bukovina--Economic conditions)

BERENSHEYN, Leonid Yefimovich; GORAK, Vladimir Vladimirovich  
(Horak, V.V.); GODLEVSKAYA, V.O. [Hodlevs'ka, V.O.], red.;  
MEYEROVICH, S.L., tekhn. red.

[The Ukraine works for virign lands] Ukraina - tsilynnym  
zemliam. Kyiv, Derzhpolitvydav URSR, 1962. 81 p.

(Ukraine--Agriculture)

(MIRA 15:7)

RASPOPOV, I.V.; LUKASHOV, G.G.; PLISKANOVSKIY, S.T.; ARTYUKHOV, B.N.;  
TARASOV, D.A.; ARIKHBAEV, V.V.; Prinimali uchastiye; ZENYUKOV,  
V.P.; NEMTSOV, N.S.; GODLEVSKIY, A.I.; LEVCHENKO, G.F.;  
DEGTYAREVA, Z.I.; GORLACH, A.A.; YAKUSHECHKIN, Ye.I.

Intensifying the sintering process by air preheating and by  
improving the performance of exhaust fans. Stal' 23 no.8:  
679-682 Ag '63. (MIRA 16:9)

1. Zhdanovskiy metallurgicheskiy institut i metallurgicheskiy  
zavod "Azovstal'."

(Sintering)

GOBLEVSKIY, G.F.; GABCHANYUK, N.M.; KRONENBERG, V.M.; LIFANOV, V.S.,  
red.

[Combat cruises; the squadron of the Black Sea Fleet in  
the Great Patriotic War] Pokhody boevye; eskadra Chernomorskogo flota v Velikoi Otechestvennoi voine. Moskva,  
Voenizdat, 1966. 241 p. (MIRA 19:1)

KOSIKOV, A.M., inzh., red.; CHAPLYGIN, D.V., kand. tekhn. nauk,  
red.; GODLEVSKIY, I.B., inzh., red.

[Construction specifications and regulations] Stroitel'nye  
normy i pravila. Moskva, Stroiizdat. Pt.3. Sec.1. ch.2.  
[Power-producing hydraulic structures in rivers; regulations  
for the organization of construction and acceptance for  
operation] Gidrotekhnicheskie sooruzhenia rechnye energeti-  
cheskie; pravila organizatsii stroitel'stva i priemki v eks-  
pluatatsiiu (SNiP III-I.2-62). 1964. 17 p. (MIRA 17:10)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam  
stroitel'stva. 2. Gosstroy SSSR (for Kosikov). 3. Mezhdu-  
vedomstvennaya komissiya i pereamotru Stroitel'nykh nor-  
pravil (for Chaplygin). 4. Vsesoyuznyy proyektno-izyskatel'-  
skiy i nauchno-issledovatel'skiy institut imeni S.Ya.Zhuka  
(for Godlevskiy).

GODLEVSKIY, I. F.

Cand Med Sci - (diss) " Changes in bronchi precursing and accompanying broncho-lung cancer." Vinnitsa, 1961. 20 pp; (Odessa State Medical Inst imeni N. I. Pirogov); 300 copies;free; (KL, 5-61 sup, 202)

COMMON ELEMENTS		METALLURGICAL LITERATURE CLASSIFICATION	
1ST AND 2ND POSITIONS	3RD AND 4TH POSITIONS	5TH AND 6TH POSITIONS	7TH AND 8TH POSITIONS
<p><b>Aldrylite</b>—a new mineral. M. N. Golitsynskii. <i>Izv. vuz. tsvet. metal.</i> 63, 338-44 (in German 344-51) (1964).                      The Aldrylyt Ni is located in the southern Ural mountains near Kuvshinovskaya in the Aldryly and Samuilovskaya rivers. A mass of serpentine derived from peridotite cuts the Lower Carboniferous limestone. The limestones near the contact are cut by veins of a Ni aluminosilicate bordered, in places, by kaolin and associated with limonite. The aldrylite also occurs as rounded masses, associated with talc and limonite in siliceous argillaceous limestone. It shows structure colloidal, fracture subconchoidal, hardness 1.4; sp. gr. approx. 2.5; color turquoise blue, weathering greenish; luster dull; brittle; colorless in thin section; isotropic or of birefringence showing first order grays, some specimens showing a lattice-work structure similar to that of chrysotile; <math>n</math> variable, 1.531-1.545 for most specimens, but for some as low as 1.500 and for others as high as 1.574. An analysis of material with <math>n</math> 1.531-1.545 indicates the formula <math>2\text{NiO} \cdot 2\text{Al}_2\text{O}_3 \cdot 3\text{SiO}_2 \cdot 7\text{H}_2\text{O}</math>. A table showing intensities and spacing of the x-ray diffraction pattern is given. A comparison with the chem. compos. of various hydrous Ni aluminosilicates and hydrous Mg aluminosilicates indicates that aldrylite is a new mineral.</p>		<p>R. H. Beckwith</p>	

1ST AND 2ND CATEGORIES																										3RD AND 4TH CATEGORIES																									
PROCESS AND PROPERTIES INDEX																																																			
<p><i>ca</i></p> <p>The Lake Ussuri borates. A. A. Ivantsov, M. N. Gudkov, V. V. Mokritskii and A. N. Volkov. <i>Problemy Sovetsk. Geol.</i> 7, 617-618 (1967). Secondary borates consisting of hydroboracite, eskolaite, aschornite, pandermite, inyoite, and ulexite are found in Permian gypsum. Borate accumulations are richer in the deposits marginal to the halides from which they were derived by selective soln.</p> <p style="text-align: right;">E</p> <p style="text-align: right;">F. H. Rathmann</p>																																																			
<p>ASB-ILA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

PROCESSING AND PRESENTATION INDEX																									
<p><i>ca</i></p> <p><b>Microphotographic studies on hydrated silicates of nickel.</b>  M. F. Akhmedova and M. N. Gaidukovskii. <i>Mem. soc. russ. minéral.</i> 69, No. 1, 61-106 (1967); <i>Chim. Zentr.</i> 1968, 1, 48; cf. C. A. 32, 3077P.—Hydrated Ni silicates were investigated by the Debye-Scherrer method. The minerals were also investigated chemically and microscopically. Nepheline and recondishite represent the same mineral; the term recondishite can be used only to designate the colloidal variety of nepheline. Gersdorffite is the most widely distributed hydrated silicate of Ni. Gersdorffite</p> <p>(cf. C. A. 32, 3731P): the viscosity of a stony meteorite was measured in the molten state (after sepn. of metallic material) by the sinking-ball method (C. A. 29, 1064P). The softening points for the tektites and the moldavites were, resp., 1070 and 1100°, fusion of the siliceous part of the meteorite began at about 1320°. Viscosities of the materials, resp., were: 0.50-1.00 × 10<sup>10</sup>, 1.00 × 10<sup>10</sup>, 1.22 × 10<sup>10</sup> poises; (0.00) 1.410°, 1.7 × 10<sup>10</sup>, 2.3 × 10<sup>10</sup>, 1.00-1.410°, 1.46 × 10<sup>10</sup>, 1.15 × 10<sup>10</sup>. The temp. viscosity curves for these materials fall between those of ordinary and quartz glass (cf. C. A. 25, 3890P). The results given by the meteorites and by the tektites do not agree with the viscosity-acidity coeff. relation for the rocks (cf. C. A. 32, 3730P). This may be taken as evidence against the terrestrial origin of tektites. D. W. Peacor</p>																									
<p>AND THE METEOROLOGICAL LITERATURE CLASSIFICATION</p>																									

LIST AND TWO CRUISES		PRECEDENCE AND PRIORITY	
<p><b>Mineralogy of the Lader borate deposits</b> M. Goulet.  <i>skil. Mém. soc. russe minéral.</i> 66, 315-44 (1967); <i>Vestn. Akad. Mineral. Geol.</i>, Ref. 1, 1938, 674-5; cf. C. A. 32, 4480. — These deposits include hydrolawsonite, <math>\text{CaMgB}_6\text{O}_{11} \cdot 10\text{H}_2\text{O}</math>; ulexite, <math>\text{NaCaB}_5\text{O}_{10} \cdot 8\text{H}_2\text{O}</math>; inyoite, <math>\text{Ca}_2\text{B}_6\text{O}_{11}</math>; colemanite, <math>\text{Ca}_2\text{B}_6\text{O}_{11} \cdot 5\text{H}_2\text{O}</math>; pandermite, <math>\text{Ca}_2\text{B}_6\text{O}_{11} \cdot 8\text{H}_2\text{O}</math>; <math>\text{H}_2\text{O}</math>, colloid or metacolloid, with <math>n_x = 1.574</math>, <math>n_y = 1.585</math>, <math>n_z = 1.583</math>; <math>\beta</math>-scharite, <math>\text{MgHfB}_6\text{O}_{11}</math>, <math>n_x = 1.575</math>, <math>n_y = 1.582</math>, <math>n_z = 1.580</math>, <math>d = 2.08</math> (<math>\alpha</math>- and <math>\beta</math>-scharite and camellite are polymorphic forms of the same complex); and the new mineral <i>laderite</i>, <math>\text{Mg}_2\text{B}_6\text{O}_{11} \cdot 10\text{H}_2\text{O}</math>, <math>d = 1.79</math>, <math>n_x = 1.488</math>, <math>n_y = 1.504</math>. This forms small white nodules or a mass of needles. The origin of these various minerals is discussed.  C. A. Silberrad</p>			
<p>ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION</p>			

PROCESSING AND PROPERTIES INDEX																																																																																																							
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<p>Regularity in the hydrotogenic processes of mineral formation. M. N. Godlevskii. <i>Mém. soc. russe minéral.</i> 66, 486-8 (1937); <i>Chim. Zentr.</i> 1938, 11, 1018. It is assumed that in the hydrotogenic processes of mineral formation the thermodynamic conditions are such that the earth's crust is not satd. with <math>O_2</math>, although <math>O_2</math> is present in the earth's crust in amts. up to 40.13 wt. %. It further follows that the greater part of the rocks formed in the earth's crust show an alk. reaction when they go into soln. Therefore, for the earth's crust, processes which are pos. and neg. from the thermodynamic standpoint can be differentiated, the distinction depending on whether an increase or decrease in pH occurs. The neg. processes are confined to the biosphere and the magmatic zone. Penetration of solns. from the biosphere or the magma deep into the rocks in most cases produces an increase in pH and a decrease in oxidation-reduction potential.</p> <p>M. G. Moore</p>																																																																																																							
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<table border="1"> <thead> <tr> <th colspan="13">GROUP 1</th> <th colspan="13">GROUP 2</th> </tr> <tr> <th colspan="13">SUBGROUP 1</th> <th colspan="13">SUBGROUP 2</th> </tr> </thead> <tbody> <tr> <td colspan="13">1 2 3 4 5 6 7 8 9 10 11 12</td> <td colspan="13">1 2 3 4 5 6 7 8 9 10 11 12</td> </tr> </tbody> </table>																										GROUP 1													GROUP 2													SUBGROUP 1													SUBGROUP 2													1 2 3 4 5 6 7 8 9 10 11 12													1 2 3 4 5 6 7 8 9 10 11 12												
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Discovery of potassium magnesium borate (kaliborite) in the Inder borate deposits. M. N. Golevskii and A. A. Ivanov. *Soviet Geol.* 8, No. 5, 115 (1965); cf. C. A. 33, 2850. -- The samples were reddish brown due to traces of limonite and analyzed as  $K_2Mg_3B_6O_{14} \cdot 3H_2O$ . The Inder soils consist of 60-65% kaliborite. F. H. R.

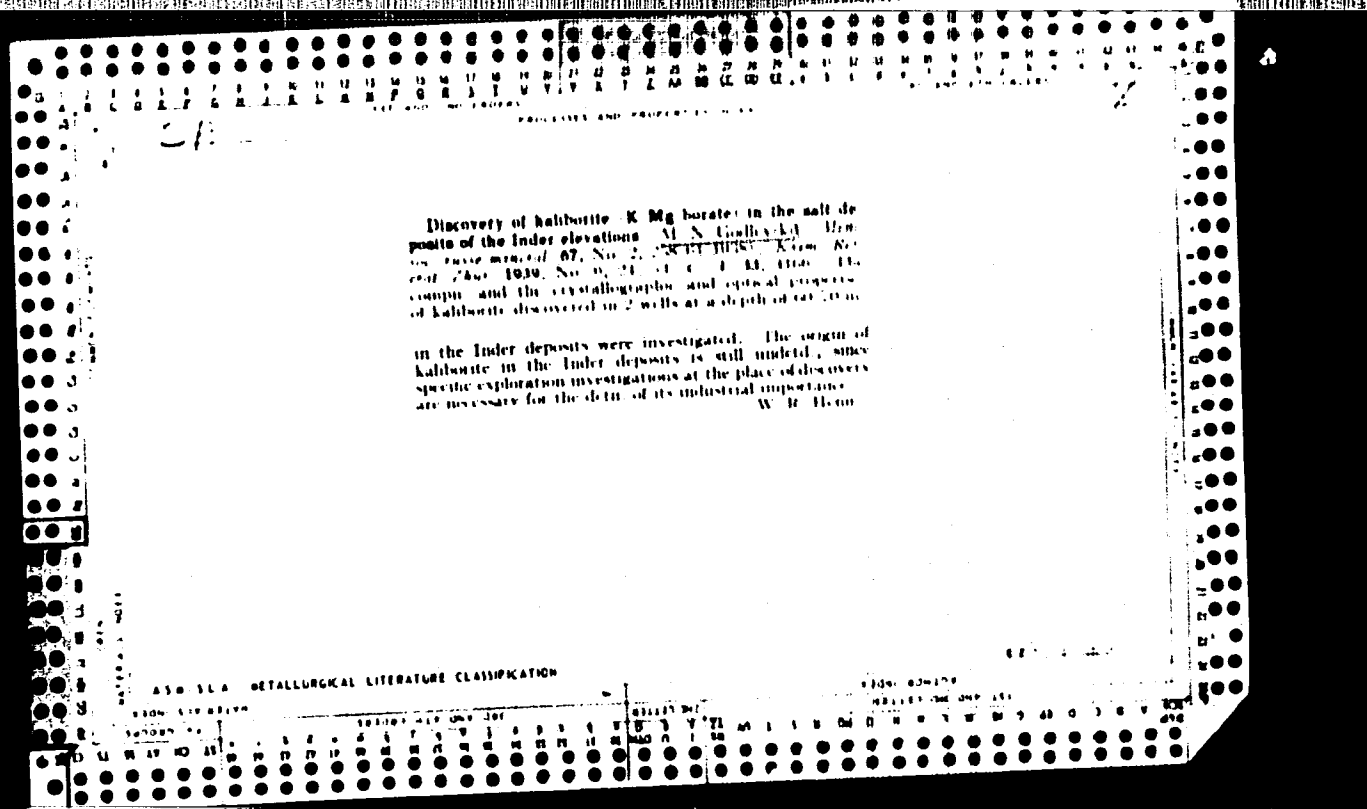
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

ANALYSIS OF THE PARAGENESIS OBSERVED IN THE LINDER DEPOSITS OF BORATES. M. N. Godlevskii. *Mem. 101. Russ. mineral. 67, No. 1, 18-29 (1967) - Akh. Referat. Zhur. 2, No. 4, 44 (1969); cf. C. A. B., 2850.*—The following borates are found in the Linder region: ulexite, inyoite, colemanite, pandermite, indurite,  $\beta$ -ascharite, hydroboracite and khalborite. The first 6 are found in the gypsum zone and the rest in the transition zone and in the salt mass. Khalborite is found only in the salt mass. The paragenesis can be conditionally divided into (1) the "equil." (no replacement of one mineral with another is observed) and (2) the "non-equil." (a definite replacement is observed). The ulexite +  $\beta$ -ascharite, the inyoite +  $\beta$ -ascharite, etc., belong to "equil." type, while the hydroboracite (inyoite +  $\beta$ -ascharite), colemanite + pandermite and a no. of others to the "non-equil." Being unstable at atm. pressure and at the surface temp., hydroboracite undergoes a no. of transformations from the intruding surface water.

hydroboracite  $\xrightarrow{\text{ulexite}}$  inyoite  $\rightarrow$  pandermite  
 $\beta$ -ascharite (colemanite)

mineral carbonates. The colloidal character of most borates was proved. In spite of this the phase rule can be applied to the investigation of the systems of these deposits. By applying the conception of the active and the inert components during metasomatism (formulated by Korzhinskii), G. was able to study in more detail the systems  $(\text{CaO}-\text{B}_2\text{O}_3)$ ,  $(\text{MgO}-\text{CaO}-\text{B}_2\text{O}_3)$ , to det. the fields of stability of the single minerals and to det. a no. of conditions of the formation of the Linder borate deposits. W. R. H.

AS 5 SLA METALLURGICAL LITERATURE CLASSIFICATION



Further investigation of the halloysite from the deposits of Aldirly. M. N. Gashalov. *Nov. i rev. mineral. ed.* 1961, 3, 100B, (*Chem. Zvesti* 1960, 11, 226). The halloysite from Aldirly is a cryptocrystalline mix of 50.07% halloysite and 49.93% metahalloysite. The properties can be additively deduced from the properties of the constituents.  $n_D^{20}$  is 1.540. M. G. Mour.

M G. Meunier

AS 0.11 A METALLURGICAL LITERATURE CLASSIFICATION

CA

PROCESSES AND PROPERTIES INDEX

Glauberite from the salt beds of Taimbeevo and from  
Tuz-Eye Lake. M. N. Gulevskii. *Mem. soc. russa  
mineral.* 66, 576-8 (1939); *Khim. Referat. Zhur.* 1940,  
No. 6, 26. -- In their phys., crystallographic and chem.  
properties, these glauberites are similar to those from other  
deposits except that their  $n_D$  differ sharply from those  
given in the literature:  $n_D$  1.527,  $n_D$  1.507,  
all  $\alpha$  0.002 in Na light at 18°. W. R. Hearn

8

ASS-SEA METALLURGICAL LITERATURE CLASSIFICATION

A.C.S.

Geology

Kurnakovite, a new borate. M. N. Gerasimov, *Compt. Rend. Acad. Sci. U.R.S.S.*, 267:1086-87 (1968); *Khim. Referat. Zhur.*, 6 [4] 61 (1961).—G. describes a new borate corresponding to  $2MgO \cdot 3B_2O_3 \cdot 12H_2O$  found among the borates of the Indur region. Kurnakovite was found in one of the deposits in the shape of masses of irregular shape placed among asharite and also in the form of large grains having a glassy luster found on the walls of small caverns. The analysis gave the following results:  $MgO$  18.46,  $B_2O_3$  37.22,  $H_2O$  47.09,  $CaO$  0.16,  $FeO$  0.20,  $SiO_2$  0.10,  $P$  0.14, and insoluble residue 0.20%. It has a hardness of 3, and its specific gravity is 1.88. G. suggests that kurnakovite is a special phase of the system  $MgO-B_2O_3-H_2O$  and most likely was formed in a gypsum cap at the expense of Mg-containing borates. With the dilution of the solutions, it gradually transforms into asharite. M.No.

A & S.

ology.

Isomorphous mixtures. M. N. GUMBYAN, *Zapiski Vsesoyuznogo Mineral. Obshchestva*, 65 (3-5) 231-27 (1940); *Khim. Referat. Zhur.*, 6 (5) 22 (1941). -- O. Under- stands isomorphous mixtures to be solid colloidal systems made up of crystallites of separate components having colloidal dimensions. Isomorphous mixtures are therefore solid colloidal mixtures. When an isomorphous mixture is formed from the salts  $Ax$  and  $B_y$ , the ratio of  $A$  and  $B$  is equal to the stoichiometric relation. An X-ray diagram shows the lines of both components, and a thermogram shows the characteristic steps of both components. Isomorphous mixtures arranged according to the increase or decrease of any one of the components form an isomorphous series. As an example of an isomorphous series, O. cites ferritallapatite-garnetite. Its composition may be expressed by the approximate formula  $a(Al,Fe)_2Si_2O_7 \cdot bH_2O + c(Na,Mg,K)(OH,OH_2) \cdot dH_2O$ . The members of this series are apparently formed by the coagulation of the corresponding sols. Under the microscope, the minerals appear as a uniform mass with a weak aggregate polarization. X-ray analysis gives the lines of both ferritallapatite and garnetite. In the thermal analysis, all the steps characteristic for garnetite and for ferritallapatite were found. M. H.

**New borate--metahydroborate.** N. J. Ikornikova and M. S. Godlevski (*Compt. rend. Acad. Sci. U.R.S.S.*, 1961, **20**, 257-258).  
The mineral has the formula  $\text{CaO} \cdot \text{MgO} \cdot 3\text{H}_2\text{O} \cdot 11\text{H}_2\text{O}$ ; hardness 3.5,  $d \approx 2.40$ . (Cf. preceding abstract.) A. J. M.

3(5) PHASE I BOOK EXPLOITATION 307/1886

3(5) "Meditsinskaya nauchnaya sessiya po metallogenicheskim i prognosticheskim kartam, Alma-Ata, 1956.

Materialy nauchnoy sessii po metallogenicheskim i prognosticheskim kartam. (Materials Presented at the Scientific Session on Metallogenetic and Postulated Ore Occurrence Maps) Reports) Alma-Ata. Izd-vo AN Kazakhskoy SSR, 1956. 318 p. Kravt slip inserted. 3,650 copies printed.

M.: A.B. Pogodnev; Tech. Ed.: P.F. Alferova.

Sponsoring Agencies: (1) Akademiya nauk SSSR, (2) Akademiya nauk Kazakhskoy SSR, Alma-Ata, (3) USSR, Ministerstvo geologii i obratnyy posred., (4) Kazakh SSR, Ministerstvo geologii i obratnyy posred.

Purpose: This book is intended for exploration geologists, mining engineers, and cartographers.

307/1886

Materials Presented (Cont.)

CONTENTS: This collection of reports was presented at the United Scientific Session on Metallogeny and Postulated Ore Occurrence Maps convened by the Academy of Sciences in Alma-Ata, December, 1956. The reports deal with various aspects of compiling metallogenetic and ore occurrence maps as well as the methodology and techniques of structural-geophysical exploration data. These reports deal with non-ferrous metals. Three other reports delivered at the conference but not included in this work were read by Ye.Ye. Zakharov, B.S. Shatalov, and Yu.K. Goretskiy. References accompany each article.

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Syrtis, B.A. [Kaz SSR and Kaz SSR]. Technique of Compiling a Metallogenetic and Postulated Occurrence Map for the Mesozoic Basins of Central Kazakhstan 165

Gumal'fukh, B.M. [USSR]. Basis Principles for Compiling Postulated Occurrence Maps for Phosphates 151

Andjarskiy, M.M. [USSR]. Problem of Compiling the Metallogenetic Postulated Occurrence Map for the Northwest Part of Siberia Platform 199

Ivanov, A.A. [USSR]. Relations Formations of the USSR and the Regularity of Distribution of the Principal Ore Deposits Related to Them 203

Kudachish, Ye.A., I.M. Yezhov. [USSR]. Large Scale Metallogenetic Mapping 212

Card 5/6

GODLEVSKIY, M.N.; BATALIYEV, A.D.

Mafic minerals from differentiated trap intrusions in the  
Noril'sk region. Min.sbor. no.12:196-224 '58. (MIRA 13:2)

1. Kompleksnaya geologorazvedochnaya ekspeditsiya, Noril'sk.  
(Noril'sk region--Iron)  
(Noril'sk region--Magnesium)

Codlevskiy, M.N.

AUTHOR: Codlevskiy, M.N., Engineer

127-56-6.3/25

TITLE: The Geology and Ore Deposits of the Noril'sk Region (Geologiya i rudnyye mestorozhdeniya Noril'skogo rayona)

PERIODICAL: Gornyy Zhurnal, 1958, Nr 6, pp 9-14 (USSR)

ABSTRACT: The Noril'sk ore fields, situated in the Taymyr national district, form the edge of the Siberian plateau, adjoining from the east the Yenisey folding zone, covered by Quaternary deposits of the West-Siberian lowland. The tectonic structure of Noril'sk region varies from plateau to a geosyncline. The Khantay'a-Rybnaya (Khanaysko-Rybninskiy) bank is the most important structural tectonic element. Sedimentary rocks of the Tunguska (Middle Carboniferous - Upper Permian) series, cover the more ancient parts of the maritime Paleozoic period. Parallel with the axis of the bank are situated 2 zones of breaks containing very deep fissures through which the basaltic lava permeated into layers of the Permian and Triassic periods (Table 1). The author distinguishes 4 volcanic cycles in the Noril'sk region - 1 in the Permian and 3 - in the Triassic periods, during which analogous volcanogenous rocks, called traps, were formed. The Noril'sk ore field is characterized by

Card 1/2

The Geology and Ore Deposits of the Noril'sk Region

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uniformity of geologic structure and by the development in its limits of copper-nickel-platinous deposits. All these various ore deposits were formed during different volcanic cycles, hence - their variety (Table 2). There are four main ore deposits in the Noril'sk region: Noril'sk I; Noril'sk II; Chërnaya Mountain and Zub Mountain. The Noril'sk I deposit is genetically connected with the intrusion which occurred on the limit of the Permian and Triassic periods (Figure 1). Special geo-chemical research showed that 15 different elements are in this intrusion: Cu, Ni, Co, Pd, Pt, Rh, Ru, Ir, Au, Ag, S, Se, Te, Os, and Ti. In the Noril'sk II deposit, mainly taxitic gabbro-diabases and gabbro-norites are found. The Chërnaya Mountain deposit is connected with a differentiated intrusion of gabbro-diabases of varying composition. The Zub Mountain deposit is of very complicated structure. Five different layers of minerals are to be found there. The ore-bearing layer contains picrite and taxitic gabbro-diabases and gabbro-norites.

There are 2 tables and 5 figures.

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TITLE:

Peculiarities in the Development of Trap-Magmatism in the Northwestern Siberian Platform (Ob osobennostyakh razvitiya trappovogo magmatizma na severo-zapade Sibirskoy platformy)

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ABSTRACT:

Evidence of long-lasting (P + T) magmatic activity characterizes the northwestern part of the Siberian Platform. Furthermore, there is evidence for advanced trap differentiation; not only in the intrusive rocks but in the extrusive rocks as well. On the Syverma plateau the lavas obtain a thickness of 2000 m and cover an area of 1,550,000 km<sup>2</sup>. The greatest trap vulcanism took place along the Taymyr fault zone and in the northwestern part of the Platform (Permian Cycle). In the Lower Triassic the vulcanism had spread over the entire Siberian Platform; there were 3 periods of activity separated by times of quiescence.

A pronounced differentiation of the lavas of each cycle shows that the differentiation in the magma reservoir had not ceased up to the time of extrusion. During each cycle the

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